

3 SUB 05

ABSTRACT

5 A method of endoluminally bypassing blood flow through an aneurysm in the vicinity of a branched blood vessel is provided. The method comprises the steps of advancing a graftstent complex through each branch of the branched blood vessel, aligning the cephalic stents of each of the graftstent complexes relative to each other in a common vessel above the aneurysm, and deploying each of the aligned cephalic stents in the common vessel.

10 The invention also provides an expanded vascular stent having a non-circular cross-section and an apparatus for expanding the stent in this manner. Preferably, the expanded stent is generally "D" shaped for collateral deployment within a common body lumen. A curved edge of the stent engages a body lumen while an alignment edge engages a collaterally deployed stent. A segment of graft material having at least one end cut on a bias may be attached to the stent so that the graft material extends substantially between the proximal and distal ends of the stent along its alignment edge, yet only partially along its curved edge to assist in forming a hemostatic seal. The apparatus may also be used for collaterally deploying stents within the common body lumen.

15 The invention further provides an apparatus for rotationally aligning the stent alignment edges by providing an indication of the relative rotational alignment of the indwelling stents on a portion of the apparatus which remains external to the patient.

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while an alignment edge engages a collaterally deployed stent. A segment of graft material
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